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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LAYE, JADE O

ART UNIT

PAPER NUMBER

2617

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/895,789

Applicant(s)

CHAPPELL ET AL.

Examiner

Jade O. Laye

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

I. Applicant's amendments, dated 10/17/05, have been entered. Accordingly, the objections applied in the previous Non-Final Action are hereby withdrawn.

Response to Arguments

II. Applicant's arguments filed 10/17/05 have been fully considered but they are unpersuasive. Accordingly, **THIS ACTION MADE FINAL**.

Applicant argues Monk does not describe generating an equalized clock signal, but only a smooth clock signal that still has gaps. (Response, Pg. 9). The Examiner does not agree. At the outset, note the Examiner interprets Monk's "smooth clock signal" as reading upon Applicant's "equalized clock signal." Taking this interpretation, Monk does disclose generating an equalized clock signal.

But Applicant also argues Monk's equalized clock signal still contain gaps. In response, the Examiner directs your attention to Figures 2A-2E. Figure 2B displays a "gapped clock" containing gap 202. Once the system processes the signal, Figure 2D displays the output, which is a signal no longer containing the gap 202. Therefore, whether Monk's output signal still contains gaps is dependent upon one's interpretation of a "gap." Although Figure 2D may be interpreted to still contain gaps, it is the Examiner's position that it no longer contains the gap as shown in Figure 2B (gap 202). Accordingly, Monk does disclose the generation of an equalized clock signal which no longer contains gaps.

Applicant also argues Monk does not utilize a “data stream” to generate the equalized reference clock. (Response, Pg. 9). The Examiner does not agree. This position is based upon the interpretation of “data stream.” A data stream is nothing more than a signal containing some form of “data,” which encompasses virtually any signal—including a clock signal. Accordingly, Monk does utilize a data stream to generate the smooth clock signal (i.e., equalized reference clock).

Lastly, Applicant argues Hamlin only addresses the STS-1 protocol, which is the basic unit of SONET, and has nothing to do with audio/video signals, and therefore is a non-analogous art. (Response, Pg. 10). The Examiner does not agree. SONET addresses fiber optical transmissions and provides a flexible platform in which to transmit various digital signals in telecommunications. Additionally, the use of fiber optics to transmit multimedia data (i.e., audio/video/data) is notoriously well-known in this art. Therefore, although not explicitly stated, SONET does in fact address the transmission of various signals, including multimedia, and thus, is an analogous art.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

III. Claims 1-3 & 10-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Monk et al. (US Pat. No. 6,501,809).

As to claim 1, Monk discloses a method of transforming a gapped clock signal into a smoothed clock signal. More specifically, the system comprises receiving a gapped data stream having timestamp information into a buffer and generating a smooth (i.e., equalized) reference clock via a removal of said gaps. (Abstract; Col. 1, Ln. 20-30; Col. 2, Ln. 16-27; Col. 3, Ln. 33-Col. 4, Ln. 10). Accordingly, Monk et al anticipate each and every limitation of claim 1.

Claim 10 corresponds to the method claim 1. Thus, it is analyzed and rejected as previously discussed.

As to claim 2, Monk further teaches using said reference clock to enable equalized reads from the buffer. Moreover, this would inherently happen upon removal of said gaps. (Col. 4, Ln. 50-64; Col. 6, Ln. 24-34). Accordingly, Monk et al anticipate each and every limitation of claim 2.

Claim 11 corresponds to the method claim 2. Thus, it is analyzed and rejected as previously discussed.

As to claim 3, Monk further discloses the system utilizes a local timebase (i.e., clock signal) generated from said timestamp information, which is used to synchronize the local system with a cable modem termination system ("CMTS"). (Col. 1, Ln. 6-42). Accordingly, Monk et al anticipate each and every limitation of claim 3.

Claim 12 corresponds to the method claim 3. Thus, it is analyzed and rejected as previously discussed.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

IV. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Monk et al.

Claim 4 recites the method of claim 3, wherein the remote network element is a CMTS, and the received data stream is an MPEG compliant data stream. As discussed above, Monk et al disclose every limitation of claim 3, and Monk further teaches the use of a CMTS. (Col. 3, Ln. 33-45). Moreover, the Examiner takes Official Notice that at the time of Applicant's invention, the use of MPEG streams was notoriously well known in the art. Accordingly, it would have been obvious to one having ordinary skill in this art at the time of applicant's invention to modify the system of Monk to include MPEG data streams, thereby providing a system with increased bandwidth capacity.

V. Claims 5-9 & 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monk et al in view of Hamlin, Jr. et al. (US Pat. No. 5,157,655).

Claim 5 recites the method of claim 1, wherein generating the equalized reference clock comprises:

generating an error value representing the difference in writes to and reads from said buffer and;

driving a NCO based, at least in part, on the generated error value.

As discussed above, Monk et al anticipate each and every limitation of claim 1, but fail to disclose the limitations of claim 5. However, within the same field of endeavor, Hamlin discloses a similar system which generates a value based upon reads to and writes from a buffer and drives a *voltage controlled oscillator* based upon said value. (Abstract; Col. 2, Ln. 15-60; Col. 7, Ln. 5-12). The Examiner recognizes Hamlin only discloses the use of a voltage-controlled oscillator. However, the use of a numerically controlled oscillator would have been an obvious variant. Accordingly, it would have been obvious to one having ordinary skill in this art at the time of applicant's invention to combine the systems of Monk and Hamlin, thereby providing a system with reduced jitter via an alternate method of gap removal.

Claim 13 corresponds to the method claim 5. Thus, it is analyzed and rejected as previously discussed.

Claim 6 recites the method claim 5, wherein the error value results to an average clock frequency of the non-equalized input data stream. As discussed above, the combined systems of Monk and Hamlin disclose all limitations of claim 5, and Hamlin further discloses the error value results in high frequency changes being filtered out of the signal (i.e., average clock frequency). (Col. 2, Ln. 34-55 & Col. 5, Ln. 17-32). Accordingly, the combined systems of Monk and Hamlin disclose all limitations of claim 6.

Claim 14 corresponds to the method claim 6. Thus, it is analyzed and rejected as previously discussed.

Claim 7 recites the method of claim 5, wherein the output of the NCO enables reads from the buffer. As discussed above, the combined systems of Monk and Hamlin disclose all limitations of claim 5, and Hamlin further teaches the VCO generates an output clock, which

controls the speed at which data is read from the buffer. (Col. 2, Ln. 15-55; Col. 5, Ln. 60-Col. 6, Ln. 11). Accordingly, the combined systems of Monk and Hamlin disclose all limitations of claim 7.

Claim 8 recites the method of claim 5, wherein the output of the NCO is represented in the generated error value. As discussed above, the combined systems of Monk and Hamlin disclose all limitations of claim 5, and Hamlin further teaches the output of the VCO is fed back into the buffer, thus creating a closed loop feedback system. (Col. 2, Ln. 34-55 & Fig. 2-4). Accordingly, the combined systems of Monk and Hamlin disclose all limitations of claim 8.

Claim 9 recites limitations which are combinations of limitations recited in claims 7 and 8. Therefore, insofar as they coincide, each is analyzed and rejected as previously discussed therein.

Claim 15 recites limitations which are combinations of limitations recited in claims 1 and 5. Therefore, insofar as they coincide, each is analyzed and rejected as previously discussed therein.

Claim 16 recites the apparatus of claim 15, further comprising limitations too lengthy to recite herein. (refer to claim sheet). As discussed above, the combined systems of Monk and Hamlin disclose all limitations of claim 15, and Hamlin further discloses the use of XOR gates coupled to said counters, which produce a value reflective of said error values. This value is periodically sampled by VCO and used to produce an equalized reference clock. (cited portions were disclosed in previous claim rejections). The Examiner recognizes Hamlin does not disclose the use of a summer. However, the use of a summer is an obvious variant of Hamlin's XOR

gate. (Col. 7, Ln. 5-12). Accordingly, the combined systems of Monk and Hamlin disclose all limitations of claim 16.

VI. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monk et al in view of Hamlin, Jr. et al as applied to claim 5 above, and further in view of Burns et al. (US Pat. No. 6,449,291).

Note: For the sake of lengthiness, the following rejections will not contain a recitation of the claim language. Please refer to the claim sheet.

Claim 17 recites the apparatus of claim 15, comprising further limitations. As discussed above, the combined systems of Monk and Hamlin disclose all limitations of claim 15, but fail to specifically disclose the use of an accumulator (*Note: it could be argued this limitation is inherent*). However, within the same field of endeavor, Burns et al disclose a similar system wherein an accumulator is used to generate a signal. (Col. 9, Ln. 62-Col. 10, Ln. 46). Accordingly, it would have been obvious to one having ordinary skill in this art at the time of applicant's invention to combine the systems of Monk, Hamlin, and Burns in order to provide an alternate cost effective method of synchronizing the clock of a cable modem with the clock of the head end system in a cost effective manner.

Claim 18 recites the apparatus of claim 17, comprising further limitations. As discussed above, the combined systems of Monk, Hamlin, and Burns disclose all limitations of claim 17, and Burns further discloses the use of an edge detector coupled to the accumulators. Once the signal reaches a threshold, the system signifies that it is ready to send data. (i.e., generates a read

enable). (Col. 9, Ln. 62-Col. 10, Ln. 46). Accordingly, the combined system of Monk, Hamlin, and Burns disclose all limitations of claim 18.

Claim 19 recites the apparatus of claim 18, comprising further limitations. As discussed above, the combined systems of Monk, Hamlin, and Burns disclose all limitations of claim 18, and Burns further teaches the system will send data once a threshold has been met. The threshold tells the system it has achieve synchrony with the CMTS. Therefore, the read enable (i.e., send data signal) represents the equalized reference clock (i.e., synchronous reference clock). Accordingly, the combined system of Monk, Hamlin, and Burns disclose all limitations of claim 19.

Claim 20 recites the apparatus of claim 19, comprising further limitations. As discussed above, the combined systems of Monk, Hamlin, and Burns disclose all limitations of claim 19, and Hamlin further teaches the use of a feedback loop, wherein the out put of the oscillator is fed back into the buffer. (Col. 2, Ln. 34-55 & Fig. 2-4). Since the system generates a value based upon reads to and writes from a buffer, it is inherent the error value reflects feedback from the NCO. Accordingly, the combined system of Monk, Hamlin, and Burns disclose all limitations of claim 20.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jade O. Laye whose telephone number is (571) 272-7303. The examiner can normally be reached on Mon. 7:30am-4, Tues. 7:30-2, W-Fri. 7:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on (571) 272-7331. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: Jade O. Laye
Initials: JL
December 30, 2005.



VIVEK SRIVASTAVA
PRIMARY EXAMINER